

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of forming a spin valve sensor, comprising:
 2. forming a first pinned layer with a top surface, bottom surface and sides orthogonal to the top and bottom surface and having a first magnetic orientation and a first width;
 4. forming a second pinned layer with sides orthogonal to the top and bottom surface of the first pinned layer and having a second magnetic orientation anti-parallel to the first magnetic orientation and a second width; and
 7. forming a sensing layer with sides orthogonal to the top and bottom surface of the first pinned layer and having a second third width smaller than the first width; and
 9. forming a spacer layer with sides orthogonal to the top and bottom surface of the first pinned layer and having a width equal to the second width;
 11. wherein the third width is selected to coincide with a predetermined track width, the first width being selected to be wider than the predetermined track width.

1. 2. (Withdrawn) The method according to Claim 1, further comprising forming a coupling layer disposed between the first and second pinned layers.

1. 3. (Withdrawn) The method according to Claim 2, wherein the first and second pinned layers are formed with substantially equal thickness.

1. 4. (Withdrawn) The method according to Claim 3, wherein forming the first and second pinned layers creates self-pinned magnetic orientations.

1 5. (Withdrawn) The method according to Claim 3, further comprising
2 depositing an anti-ferromagnetic material (AFM) adjacent to the first pinned layer, wherein a
3 thickness of the AFM creates exchange coupling between the AFM and the first pinned layer.

1 6. (Original) The method according to Claim 1, wherein forming the sensing
2 layer includes:

3 forming a free layer having a third magnetic orientation orthogonal to the first
4 and second magnetic orientations;

5 forming a bias layer in proximity to the free layer having a fourth magnetic
6 orientation anti-parallel to the third magnetic orientation; and

7 forming an AFM layer adjacent to the bias layer, wherein exchange coupling
8 between the AFM layer and the bias layer sets the fourth magnetic orientation.

1 7. (Original) The method according to Claim 6, wherein the bias layer is
2 formed with a thickness greater than a thickness of the free layer.

1 8. (Currently Amended) The method according to Claim 1, wherein the second
2 pinned layer is formed with a width substantially equal to the second third width.

1 9. (Original) The method according to Claim 8, wherein insulating layers are
2 disposed on both sides of the second pinned layer.

1 10. (Original) The method according to Claim 1, wherein the second pinned
2 layer is formed with a width substantially equal to the first width.

1 11. (Original) The method according to Claim 1, wherein insulating layers are
2 disposed on both sides of the sensing layer.